Sample Paramedic OTEP Curriculum

Developed By
Clark County EMS

Prepared by

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Based on the
Paramedic National Standard Curriculum

Provided by
Washington State Department of Health
Office of Emergency Medical Services and Trauma System

Further Reading:

1. Tintinalli, J.E., et. al., Emergency Medicine: A Comprehensive Study Guide.
2. Bledsoe, B.E., et. al., Paramedic Emergency Care, second edition.
3. Department of Transportation; Paramedic: National Standard Curriculum.
4. American Heart Association; Textbook of Pediatric Advanced Life Support.
5. Dailey, R.H., et. al., The Airway: Emergency Management.
6. Whitten, C.E., Anyone Can Intubate.
7. ACEP, Basic Trauma Life Support: Advanced Prehospital Care.
8. Facts and Comparisons, Drug facts and comparisons, 50th edition.

TABLE OF CONTENTS

OTEP Schedule

PARAMEDIC CONTINUING EDUCATION PROGRAM
National Standard Curriculum

Division II Preparatory

Section	*Topic*	*Time*	*Instructor*	*Date*
1	General Patient Assessment	1 hr.		
2	Airway Management	2 hr.		
3	Shock	1 hr.		
4	General Pharmacology	2 hr.		
		2 hr.		

Division III Trauma

Section	*Topic*	*Time*	*Instructor*	*Date*
1	Trauma Assessment	2 hr.		
		1 hr.		
2	Central Nervous System Injuries	2 hr.		
3	Thoracoabdominal Trauma	2 hr.		
		1 hr.		
4	Burns/Soft Tissue Injuries	2 hr.		

Division IV Medical Emergencies

Section	*Topic*	*Time*	*Instructor*	*Date*
1	Assessment of Medical Patient	2 hr.		
2	Respiratory System	2 hr.		
3	Cardiovascular System	2 hr.		
		2 hr.		
		2 hr.		
		2 hr.		
4	Nervous System	1 hr.		
5	Endocrine System	1 hr.		

Division IV Medical Emergencies (cont.)

Section	*Topic*	*Time*	*Instructor*	*Date*
6	Anaphylaxis	1 hr.		
7	Gastroenterology	1 hr.		
8	Communicable Diseases	2 hr.		
9	Toxicology, ETOH, & Drug Abuse	1 hr.		
10	Environmental Emergencies	2 hr.		
11	Special Considerations for Geriatric & Pediatric Patients	2 hr.		
		1 hr.		

Division V OB/GYN/Neonatal

Section	*Topic*	*Time*	*Instructor*	*Date*
1	Gynecologic Problems	1 hr.		
2	Obstetrics & Obstetrical Emergencies	2 hr.		
3	Care of the Neonate	1 hr.		

Division VI Behavioral Emergencies

Section	*Topic*	*Time*	*Instructor*	*Date*
1 & 2	Overview Behavioral Emergencies/Psychosis	2 hr.		
3 & 4	Violent Pt./Response to Crisis	2 hr.		

Quarterly Education Programs

Quarter	*Topic*	*Time*	*Instructor*	*Date*
	Advanced Cardiac Life Support	5 hr		
	Prehospital Trauma Life Support (or equivalent)	16 hr		
	Pediatric Advanced Life Support (or equivalent)	16 hr		
	Advanced Airway Management	8 hr		

Division II - PREPARATORY

General Patient Assessment
Airway Management
Shock
General Pharmacology

Section 1 1 hour

General Patient Assessment

Education Focus Points

- Scene Survey
- Initial Assessment
- Focused History and Physical Exam
- Detailed Physical Exam
- Communications

1). Scene survey: Medical vs. Trauma, mechanism of injury/illness, identification of scene hazards, protective equipment.

A. Scene size up; is the scene safe?
B. Determine nature of illness (medical), or mechanism of injury (trauma)
C. Total number of patients?
D. Review of body substance isolation.

2). Initial Assessment: Universal precautions, evaluation of ABCD's, identification of priority patient, assessment considerations in trauma vs. medical pt.

A. Assessment/management of airway.
B. Assessment/management of respiratory status.
C. Assessment/management of circulatory status.
D. Assessment/management of mental status.
E. Patient prioritization.
F. Provision of C-Spine precautions if trauma pt.

3). Focused History/Physical Exam: Physical exam techniques, vital signs, EKG monitoring, pulse oximetry, BGL, blood draw.

A. History of present illness responsive/unresponsive patient (i.e. SAMPLE, OPQRST).
B. Rapid trauma assessment (head to toe).
C. Use of diagnostic/treatment adjuncts.

4). Detailed Physical Exam: Determine/evaluate chief complaint, history of present illness, previous medical history, AMPLE, PMD.

A. Physical exam patient and injury specific.

5). Communications: Radio (H.E.A.R.), medical control consult, transfer of care, documentation.

A. Radio report format
B. Use of medical control; accessing MD, necessary information, medical control concurrence procedures.
C. Pt. care reports; oral and written documentation.

Assessment

Division II, Section 1

General Patient Assessment

1. 1. Identify some potential scene hazards that may apply to patient care situations and ways to reduce or alleviate these hazards.

2. Identify the components of the initial patient assessment.

1. 3. Differentiate initial patient assessment techniques for trauma and medical patients.

1. 4. Define the terms Inspection, Palpation, Percussion, and Auscultation.

1. 5. Overview the indications for the use of the following diagnostic adjuncts; EKG monitoring, pulse oximetry, end-tidal CO2 detection, glucometer, and blood draw.

1. 6. Differentiate the prehospital H.E.A.R. report and the bedside patient care report.

- * *Demonstrate the performance of the initial patient assessment and patient prioritization*
- * *Perform a focused history and physical exam including use of diagnostic adjuncts.*

Section 2 2 hours

Airway Management

Education Focus Points:

- Anatomy
- Physiology
- Assessment
- Obstruction
- Basic Airway Management
- Advanced Airway Management
- Suctioning
- Oxygenation and Ventilation

1). Anatomy: Upper airway, lower airway (adults and peds).

A. Describe the anatomy of the upper and lower airways.
B. Overview differences between the Adult and Pediatric airway.

2). Physiology: Mechanics of ventilation, pulmonary circulation, gas exchange (O_2 vs. CO_2), respiratory drive.

A. Discuss concentration of gases which comprise atmospheric air.
B. Review the mechanics of ventilation.
C. Describe measurement of serum O_2 and CO_2 and importance of each in determining proper ventilation.
D. Discuss pulmonary circulation.
E. Review regulation of respiration and measures of respiratory function.

3). Assessment: Primary, secondary, history, physical examination.

A. Discuss normal tidal volumes and rate for adults and pediatrics.
B. Review flail chest.
C. Review physical examination techniques.
D. List abnormal respiratory sounds and implications of same.
E. Identify laryngectomy, stoma, tracheostomy, and tracheostomy tube.

4). Obstruction: Tongue, FBAO, trauma, spasm/edema, aspiration.

A. Discuss aspiration.
B. Describe partial airway obstruction with good and poor air exchange.
C. Describe complete airway obstruction.
D. Discuss causes of upper airway obstruction.
E. Briefly describe airway obstruction relief maneuvers for adults and peds.
F. Demonstrate direct laryngoscopy to relieve FBAO.

5). Basic Airway Management: Manual airway management (opening the airway, sellick), mechanical airways (OPA, NPA), PPV techniques.

A. Describe methods of manually opening the airway.
B. Discuss importance and correct performance of the Sellick maneuver.
C. Discuss proper procedures for ventilation: mouth to mouth, mouth to stoma, and mouth to nose. Include pediatric considerations.
D. Discuss indications/contraindications of oral and nasal airways including proper insertion techniques.
E. Demonstrate the Bag-Valve-Mask unit including impediments of mask ventilation.

6). Advanced Airway Management: Intubation (adults and peds), RSI, surgical airways, removal of foreign bodies.

A. Describe endotracheal intubation including indications, contraindications, and general precautions for adults and pediatric patients.
B. Discuss complications of endotracheal intubation.
C. Describe indications, technique, and contraindications of nasotracheal and digital intubation.
D. Overview neuromuscular blockade and rapid sequence induction.
E. List indications, contraindications, complications, and technique for cricothyrotomy.
F. List indications, contraindications, complications, and technique for translaryngeal ventilation.
G. Identify indications, contraindications, general precautions, and complications for extubation.
H. Demonstrate removal of foreign body via direct visualization.

7). Suctioning: Equipment and technique (adults and peds).

A. Identify suction devices including portable and fixed.
B. Review suction catheters.
C. Describe indications, techniques, and special considerations for suctioning the upper airway.
D. Describe indications, techniques, and special considerations for tracheobronchial suctioning in the intubated patient.

8). Oxygenation & Ventilation: Delivery devices, ventilation techniques, ventilating special populations (peds, stoma, tracheostomy tube, facial trauma,).

A. Describe oxygen delivery devices and indications/contraindications for each.
B. Discuss impediments of ventilation including facial trauma and stoma.
C. Overview pediatric ventilation techniques.

Assessment

Division II, Section 2

Airway Management

1. Define normal respiratory rates for the adult, child, and infant.

2. List causes of upper airway obstruction and detail methods for relieving the obstructed airway.

3. Define and list some of the complications associated with aspiration. Discuss the Sellick Maneuver and its importance in airway management.

4. Describe the correct technique, necessary equipment, and indications for suctioning the upper airway.

5. List the indications and contraindications for using the Non-Rebreather Mask and the Nasal Cannula.

6. List some indications for the following advanced airway procedures: endotracheal intubation, nasotracheal intubation, rapid sequence induction, surgical cricothyroidotomy.

**Correctly perform basic airway management including opening the airway, administering cricoid pressure, and ventilating properly.*
**Correctly perform advanced airway techniques including endotracheal and nasotracheal intubation, rapid sequence induction, and surgical cricothyroidotomy.*

Section 3 1 hour

Shock

Education Focus Points:

- Perfusion
- Acid-base balance
- Physiologic response to shock (adults and pediatrics)
- Types of shock
- Evaluation and management

1). Perfusion: Physiology of the circulatory system:

A. Heart: preload/afterload, cardiac output, PVR
B. Blood: components of.
C. Vasculature: regulation of flow.
D. O_2 transport, tissue perfusion.

2). Acid - Base Balance: Regulation and derangements of.

A. Discuss hydrogen ion concentration.
B. Overview acid production, transport, and excretion.
C. Evaluate acid-base abnormalities; etiology, pathophysiology, and treatment.

3). Physiologic Response to Shock (adults and pediatrics): Systemic response, cellular response, stages of shock (compensating, decompensating, irreversible).

A. Review signs and symptoms of shock.
B. Discuss aerobic and anaerobic metabolism.
C. Define the stages of shock.

4). Types of Shock: Hemorrhagic, cardiogenic, septic, neurogenic.

A. Discuss pathophysiology, clinical presentation, and management of hemorrhagic, cardiogenic, septic, and neurogenic shock.

5). Evaluation and Management: ABC's, control of bleeding, pt. positioning, maintenance of body temperature.

A. IV therapy: site selection, types of fluid, complications of.
B. PASG: theory, controversies in.
C. Medications: indications and contraindications.
D. Review hemorrhage control techniques
E. Demonstrate proper patient position for enhancing cardiac output and cerebral blood flow.

Assessment

Division II, Section 3

Shock

1. List examples of the following causes of circulatory failure: hypovolemia, pump failure, loss of vascular tone, obstruction of cardiac filling.

2. Define the following stages of shock: compensated, decompensated, and irreversible.

3. Detail the clinical presentation and management of hemorrhagic, cardiogenic, septic, and neurogenic shock.

**Demonstrate hemorrhage control via the following methods: direct pressure, pressure points, and PASG.*
**Demonstrate IV insertion and fluid resuscitation including: correct site location, appropriate catheter size, indicated replacement fluid, proper insertion technique, and proper administration set.*

Section 4 4 hours

General Pharmacology

Education Focus Points:

- Basic Medication Overview
- Effect of Medications
- Autonomic Nervous System
- Administration of Medications
- Emergency Cardiovascular Drugs
- Emergency Respiratory Drugs
- Emergency Metabolic/Endocrine Drugs
- Emergency Neurological Drugs
- Emergency Toxicological Drugs

1). Basic Medication Overview: Sources, legislation (schedules), names, forms, vocabulary.

A. Discuss four major sources of drugs (plants, mineral, animal, synthetic).
B. Overview legislative history including schedules I-V.
C. Review drug naming methodologies (chemical, generic, trade, official).
D. Discuss drug forms (enteral, parenteral, solids, liquid) and advantages/disadvantages of each.
E. Present terminology/vocabulary directly related to general pharmacology.

2). Effect of Medications: Pharmacokinetics, absorption, distribution, biotransformation, elimination, dynamics.

A. Present the components related to the absorption, distribution, biotransformation, and elimination of medications.
B. Discuss pharmacodynamics including receptors, therapeutic threshold, and therapeutic index.

3). Autonomic Nervous System: Basic A&P, sympathetic, parasympathetic.

A. Review basic anatomy and physiology of the ANS include. sympathetic and parasympathetic divisions.

4). Administration of Medications: Calculation of drug dosages, routes of administration, technique for administration, precautions, drug profile.

A. Review systems of weights and measures including conversions to metric system.
B. Discuss calculation of drug dosages.
C. Detail all routes of medication administration including advantages and disadvantages of each.
D. Review technique for medication administration.
E. Discuss considerations and precautions prior to and after medication administration.

5). Emergency Cardiovascular Drugs: Description, MOA, indications, contraindications, precautions, dosage, routes for administration.

A. *Oxygen*
B. Sympathomimetics: *Epinephrine, Isoproterenol, Dopamine*
C. Antidysrhythmics: *Lidocaine, Bretylium, Procainamide, Adenosine, Magnesium.*
D. Parasympatholytics: *Atropine.*
E. Alkalinizing Agents: *Sodium Bicarbonate.*
F. Analgesics: *Morphine, Nitrous Oxide.*
G. Diuretics: *Furosemide.*
H. Antianginals: *Nitroglycerine, Nifedipine*.
I. Anticoagulants: *ASA*

6). Emergency Respiratory Drugs: Description, MOA, indications, contraindications, precautions, dosage, routes for administration.

A. *Oxygen*
B. Beta Agonists: *Epinephrine, Racemic Epinephrine, Albuterol*
C. Anticholinergic Agents: *Ipratroprium*
D. Corticosteroids: *Methylprednisone*
E. Paralytics: *Succinylcholine*
F. Other Bronchodilator: *Magnesium*

7). Emergency Endocrine/Metabolic Drugs: Description, MOA, indications, contraindications, precautions, dosage, routes for administration.

A. Antihypoglycemics: *Glucagon*
B. Carbohydrates: *D50/W*
C. Vitamins: *Thiamine*

8). Emergency Neurologic Drugs: Description, MOA, indications, contraindications, precautions, dosage, routes for administration.

A. Anticonvulsants: *Diazepam, Magnesium*
B. Sedatives/Anti-emetics: *Droperidol*
C. Antipyretics: *Acetaminophen*

9). Emergency Toxicological Drugs: Description, MOA, indications, contraindications, precautions, dosage, routes for administration.

A. Sympathomimetics: *Epinephrine*
B. Antihistamines: *Diphenhydramine*
C. Parasympatholytics: *Atropine*
D. Narcotic Antagonist: *Naloxone*
E. Cyanide Antidote: *Sodium Thiosulfate, Amyl Nitrite*
F. Absorbent Agents: *Activated Charcoal*
G. Alkalinizing Agents: *Sodium Bicarbonate*
H. *Glucagon, Calcium Chloride*

Assessment

Division II, Section 4

General Pharmacology

1. List the four major sources for drug products.

2. Define the following terms: Agonist, analgesic, anticholinergic, autonomic nervous system, beta-adrenergic blocker, carcinogenic, catecholamines, cholinergic, chemical name, colloid, contraindication, controlled substance, crystalloid, drug interaction, duration of action, efficacy, electrolytes, elimination, endorphins, excretion, generic name, half-life, hematocrit, hemoglobin, hypertonic, hypotonic, indication, isotonic, loading dose, maintenance dose, mechanism of action, onset of action, opioid, osmosis parasympatholytic, parasympathomimetic, pH, pharmacodynamics, pharmacokinetics, plasma, psychotropic, sedative, side effect, solute, solvent, somatic nervous system, sympatholytic, sympathomimetic, toxicity, trade name, tranquilizer.

3. Indicate the simple formula of converting pounds to kilograms.

4. Give an example of the following types of medications: Sympathomimetic, Antidysrhythmic, Parasympatholytic, Alkalinizing Agent, Analgesic, Diuretic, Antianginal, Anticoagulant, Beta Agonist, Anticholinergic Agent, Corticosteroid, Paralytic, Antihypoglycemic, Anticonvulsant, Sedative, Antiemetic, Antipyretic, Antihistamine.

**Demonstrate proper technique for the following routes for medication administration: Injection (IM, SC, sublingual, IV/IO), buccal , topical, inhalation, endotracheal, PO, and rectal.*

Division III - TRAUMA

Trauma Assessment
Central Nervous System Injuries
Thoracoabdominal Trauma
Burns/Soft Tissue Injuries

Section 1 3 hours

Trauma Assessment

Education Focus Points:

- Trauma Triage Protocols
- Initial Patient Assessment
- Kinetics of Trauma
- Kinds of Trauma

1). Trauma Triage Protocols: Mechanism of injury, index of suspicion, rapid trauma assessment, the "golden hour", decision to transport, destination.

A. Review mechanism of injury and its relationship to patient triage.
B. Define index of suspicion and cite examples.
C. Discuss the golden hour based on the above and the relationship with decision to transport and destination hospital.
D. Discuss performance of rapid trauma assessment based on mechanism of injury and index of suspicion to determine life threatening injuries.
E. Review appropriateness of interrupting rapid assessment to treat life threatening injuries.

2). Initial Patient Assessment: Universal precautions, ABC's, level of consciousness.

A. Review initial assessment ABCD's for adults and pediatric patients.
B. Review initial airway management techniques and indications for same in adult and pediatric patients.
C. Discuss methods for assessing adequacy of respiration in the adult and pediatric patient.
D. Review indications for CPR and prompt defibrillation.
E. Differentiate level of consciousness and mental status assessment in the adult and pediatric patient.
F. Differentiate patients requiring immediate transport and those not requiring immediate transport.

3). Focused History and Physical Exam: Rapid trauma assessment, mechanism of injury.

A. Reconsider mechanism of injury.
B. Describe rapid trauma assessment and when indicated.
C. Differentiate cases where rapid assessment may be altered to provide patient care.
D. Discuss reasons for performing a focused history and physical exam.

4). Kinetics of Trauma: Inertia, kinetic energy, force.

A. Review kinetics of trauma; define kinetic energy, inertia, and force.

5). Kinds of Trauma: Blunt trauma, Penetrating trauma

A. Examples and types of collisions involved with auto collisions, motorcycle, pedestrian, falls, sports injuries.
B. Blast Injuries
C. Ballistics, low/high velocity, pathology of penetrating trauma.

Assessment

Division III, Section 1

Trauma Assessment

1. List five physical signs and symptoms that indicate a need for rapid transport of the trauma patient.

2. Describe the proper sequence for performing the initial patient assessment.

3. Define the following terms: Kinetic energy, inertia, index of suspicion, and force.

4. Briefly differentiate injury patterns from high velocity and low velocity penetrating trauma.

**Psychomotor objectives should be met during the quarterly prehospital trauma training course.*

Section 2 2 hours

Central Nervous System Injuries

Education Focus Points:

- Anatomy and Physiology
- Head, Neck, and Spinal Trauma
- Assessment
- Management

1). Anatomy & Physiology: Scalp, skull, vertebral column, meninges, brain, spinal cord, CNS circulation, sense organs, neck.

A. Review anatomy and physiology of the CNS

2). Head, Neck, & Spinal Trauma: Scalp, skull fracture, spinal column, brain, sense organs.

A. Discuss pathophysiology and morbidity/mortality of scalp injuries.
B. Discuss pathophysiology and morbidity/mortality of skull, facial, and spinal fractures.
C. Discuss pathophysiology and morbidity/mortality of intracranial injuries including concussion, contusion, and hemorrhage.
D. Discuss pathophysiology and morbidity/mortality of spinal cord injury.

3). Assessment: Patient exam, vital signs, GCS, patient hx.

A. Detail assessment considerations for patients with suspected head, neck, and/or spinal injury.
B. Review Glasgow Coma Scale.
C. Review assessment findings associated with scalp injuries.
D. Review assessment findings associated with skull, facial, and spinal fractures.
E. Review assessment findings associated with intracranial injuries including concussion, contusion, and hemorrhage.
F. Review assessment findings associated with spinal cord injury.
G. Discuss importance of the patient history during assessment of head, neck, and spinal trauma.

4). Management: Spinal immobilization, ventilation, intubation, shock management, wound care.

A. Review techniques for spinal immobilization.
B. Discuss the overall management strategy based on the assessment and history.
C. Detail considerations for intubating and ventilating the patient with CNS injury.
D. Overview prevention and management of shock.
E. Detail pharmacologic interventions for the head/spinal cord injured patient.
F. Discuss management of the patient with scalp injuries.
G. Discuss management of the patient with skull, facial, and spinal fractures.
H. Discuss management of the patient with intracranial injuries including concussion, contusion, and hemorrhage.
I. Discuss management of the patient with spinal cord injury.

Assessment

Division III, Section 2

Central Nervous System Injuries

1. Identify signs that may indicate a spinal cord injury.

2. List the components of the spinal column.

3. What is the primary treatment goal for the patient who has suffered a spinal cord injury?

4. List important considerations when intubating the patient with a suspected spinal cord injury.

5. Define the following terms: Axial loading, Bilateral periorbital ecchymosis, Battle's sign, Contrecoup, Subdural hematoma, epidural hematoma, reticular activating system, and lucid interval.

**Psychomotor objectives should be met during the quarterly prehospital trauma training course.*

Section 3 3 hours

Thoracoabdominal Trauma

Education Focus Points:

- Anatomy and Physiology
- Body Cavity Injuries
- Assessment
- Management

1). Anatomy & Physiology: Thorax, abdomen, pelvis.

A. Discuss anatomy and physiology of the organs and structures related to thoracic injuries.
B. Discuss anatomy and physiology of the organs and structures related to abdominal injuries.
C. Discuss anatomy and physiology of the organs and structures related to pelvic injuries.

2). Body Cavity Injuries: Chest, abdominal, back, pelvic.

A. Review pathophysiology of injuries to the chest including soft tissue, bony injuries, traumatic asphyxia, pneumothorax, cardiac contusion, cardiac tamponade, traumatic aneurysm, penetrating injuries, and other blunt injuries.
B. Review pathophysiology of injuries to the abdomen including penetrating and other blunt injuries.
C. Review pathophysiology of injuries to the pelvis including soft tissue, bony injuries to the pelvic ring, penetrating injuries, and other blunt injuries.

3). Assessment: Mechanism of injury, exam, vitals, pt. history.

A. Anticipate injuries to the thorax, abdomen, and pelvis based on mechanism of injury.
B. Discuss assessment findings associated with thoracic injuries.
C. Discuss assessment findings associated with abdominal injuries.
D. Discuss assessment findings associated with pelvic injuries.
E. Overview the importance of the patient history in determining severity of injury.

4). Management: Thoracic, abdominal, and pelvic trauma care.

A. Describe management of injuries to the chest wall.
B. Discuss need for rapid intervention, transport and management of lung injuries.
C. Discuss need for rapid intervention, transport and management of thoracoabdominal vasculature injuries.
D. Detail procedure and indications for chest decompression and pericardiocentesis.
E. Review management of impaled/penetrating injuries to the thorax, abdomen, and pelvis.
B. Review appropriateness of administration of pain medication.

Assessment

Division III, Section 3

Thoracoabdominal Trauma

1. Describe the effect the mechanics of respiration may have on organ structures injured with thoracoabdominal penetrating trauma.

2. List the organs located in the retroperitoneal space.

3. List the location, by quadrant (right upper and lower, left upper and lower), of the major abdominal organs.

4. Define the following terms: Traumatic asphyxia, flail chest, pneumothorax, pericardial tamponade, evisceration, and hemothorax.

5. Describe the treatment for paradoxical chest wall motion (flail chest).

**Psychomotor objectives should be met during the quarterly prehospital trauma training course including needle decompression, pericardiocentesis, care for impaled object, care for evisceration, etc.*

Section 4 2 hours

Burns/Soft Tissue Injuries

Education Focus Points

- Anatomy and Physiology
- Pathophysiology
- Assessment
- Management of Soft Tissue Injuries

1). Anatomy & Physiology: Skin, subcutaneous tissues, vasculature.

A. Review specific integumentary anatomy and physiology related to burns and soft tissue injuries.

2). Pathophysiology: Wounds and burns

A. Define the following: abrasion, avulsion, amputation, laceration, puncture, erythema, ecchymosis, and hematoma.
B. Review the types of hemorrhage associated with soft tissue injures.
C. Describe the pathophysiologic and systemic complications of burns
D. Discuss the potential for inhalation injury in the burned patient.
E. List etiologies of thermal burns, chemical burns, electrical burns, and radiation.

3). Assessment: Soft Tissue Injury:

A. Predict soft tissue injury based on mechanism of injury.
B. Discuss the assessment of hemorrhage associated with soft tissue injuries.
C . Describe method to determine body surface area burned and degree of severity for adults and pediatric patients.
D. Determine degree of burn.
E. Determine the adequacy of the patient's airway in a burn situation.
F. Differentiate the potential for severity of injury for thermal, chemical, electrical, and radiation burns.
G. Review the systemic complications of severe burns and wounds.

4). Management of Soft Tissue Injuries: Wounds, burns.

A. Assess the severity of the burn patient in relationship to receiving facility.
B. Special airway management techniques in the burned patient.
C. Review management of hemorrhage associated with soft tissue injuries.
D. Discuss management of soft tissue injuries including technique and types of dressing for each.
E. Review necessity for burn center intervention for the severely burned patient.

Assessment

Division III, Section 4

Burns/Soft Tissue Injuries

1. Detail the three main functions of the skin.

2. Define the following terms: abrasion, avulsion, amputation, laceration, puncture, erythema, ecchymosis, and hematoma.

3. Differentiate the potential systemic complications associated with the following types of burns: chemical, electrical, thermal, and radiation.

4. List criteria that indicate the potential for critical burns necessitating transport to a burn center.

5. Describe prehospital methods to control hemorrhage.

**Demonstrate the proper sequence of treating the patient with soft-tissue injuries including management of life-threatening injuries.*

Division IV - MEDICAL EMERGENCIES

Assessment of the Medical Patient
Respiratory System
Cardiovascular System
Nervous System
Endocrine System
Anaphylaxis
Gastroenterology
Communicable Diseases
Toxicology, Alcoholism, and Drug Abuse
Environmental Emergencies
Special Considerations for Geriatric and Pediatric Patients

Section 1 2 hour

Assessment of the Medical Patient

Education Focus Points

- Scene Clues
- Initial Patient Assessment
- Focused History and Physical Exam
- Detailed Physical Exam
- On-Going Assessment

1). Scene Clues: Identification of, mechanism of chief complaint, scene hazards, identification of priority patient

A. Scene size up: is the scene safe?
B. Determine initial severity of illness.
C. Contributing scene factors to chief complaint, e.g. toxic fumes, hysterical bystanders, etc.
D. Review of body substance isolation.
E. Discuss reasons for forming a general impression of the patient.

2). Initial Patient Assessment: Universal precautions, ABC's, level of consciousness.

A. Review initial assessment ABC's for adults and pediatric patients.
B. Review initial airway management techniques and indications for same in adult and pediatric patients.
C. Discuss methods for assessing respiration in the adult and pediatric patient.
D. Review indications for CPR and prompt defibrillation.
E. Differentiate level of consciousness and mental status assessment in the adult and pediatric patient.
F. Explain reasons for prioritizing patients for care and transport.
G. Differentiate patients requiring immediate transport and those not requiring immediate transport.

3). Focused History and Physical Exam: Determine/evaluate chief complaint, history of present illness, previous medical history, AMPLE, PMD.

A. Describe assessment of the individual with a specific chief complaint and no known previous history.
B. Assess history of present illness (OPQRST, SAMPLE, etc.).
C. Describe assessment of the individual with a specific chief complaint with past medical history of same.
D. Differentiate assessment techniques for patients unresponsive or with altered mental status.

4). Detailed Physical Exam: Physical exam techniques, vital signs, EKG monitoring, pulse oximetry, BGL, blood draw.

A. Describe when and why a detailed physical exam is necessary.

B. Discuss the components of the detailed physical exam and the areas of the body covered for a medical patient.
C. Review additional patient care provided during the detailed physical exam.
D. Differentiate patients requiring a detailed physical exam from those who do not.
E. Discuss other assessment techniques including cardiac monitoring, pulse oximetry, end-tidal carbon dioxide detection, blood glucose determination, and venipuncture.

5). On-Going Patient Assessment:

A. Discuss reasons for repeating the initial assessment as part of the ongoing assessment.
B. Describe the components of the on-going assessment.

Assessment

Division IV, Section 1

Assessment of the Medical Patient

1. List five common ways to prevent contamination with body substances.

2. List options to initially control or manage the obtunded patients airway.

3. When is it appropriate to perform venipuncture (blood draw) in the field.

4. Briefly define the ongoing patient assessment and why it is important in patient care.

5. What alternative do you have for obtaining a patient history from an obtunded or altered patient.

6. Discuss the steps for conducting the initial patient assessment.

**Conduct a patient assessment including the initial assessment, the focused history and physical exam, the detailed exam, and on-going assessment.*
**Demonstrate proper use including indications for cardiac monitoring, pulse oximetry, $ETCO_2$ detection, blood glucose determination, and venipuncture.*

Section 2 2 hour

Respiratory System

Education Focus Points

- Review of Anatomy and Physiology
- Assessment of Ventilatory Status
- Pathophysiology/Management
- Overview of Respiratory Medications

1). Review of Anatomy & Physiology: Upper and lower airway.

A. Identify and discuss the structures in the upper and lower airway.
B. Describe the process of gas exchange in the lungs.
C. Describe the physiologic process of ventilation and the neurological control of breathing.
D. Discuss the following: arterial and venous partial pressure of oxygen, arterial and venous partial pressure of carbon dioxide, oxygen saturation, respiratory volumes and capacities.

2). Assessment of Ventilatory Status: History, physical exam, primary/secondary survey.

A. Explain the importance of past medical history in the patient with respiratory distress.
B. Describe chief complaints that may be indicative of respiratory conditions.
C. Describe inspection, palpation, percussion, and auscultation as they apply to the assessment of a respiratory patient.
D. Describe the application and assessment of pulse oximetry.
E. Recognize and understand the clinical significance of the following breath sounds: wheezes, rales, crackles, rhonchi, stridor, pulmonary friction rub.
F. Differentiate acute respiratory distress requiring emergent and non-emergent intervention.

3). Pathophysiology/Management:

A. Discuss the Pathophysiology and Management of the following: Asthma, COPD, Pulmonary edema, Pulmonary embolus, Pneumonia, Croup, Epiglottitis, Hyperventilation syndrome, CNS disorders, smoke inhalation, airway obstruction.
B. List factors which may exacerbate the previous conditions.
C. Discuss risk factors for development of the following conditions: CHF, non-cardiogenic pulmonary edema/embolus, pneumonia, carbon monoxide poisoning.
D. Detail special considerations for treating the pediatric patient in respiratory distress.
E. Overview techniques for basic and invasive airway management.

4). Overview of Respiratory Medications: Prehospital/In-hospital, common prescription.

A. Discuss the indications, contraindications, complications and dose ranges for the following: oxygen, bronchodilators, Nitroglycerine, Epinephrine, diuretics, Morphine Sulfate, Atropine, Atrovent, Methylprednisolone.
B. List common prescription medications for patients with respiratory disorders.

Assessment

Division IV, Section 2

Respiratory System

1. Briefly review the mechanics of respiration, specifically pertaining to inhalation and exhalation.

2. Discuss the importance of obtaining a medical history in the wheezing patient complaining of shortness of breath.

3. Define the following terms: Dyspnea, hemoptysis, asphyxia, hypoxia, cyanosis, tactile fremitus, Cor pulmonale, polycythemia, status asthmaticus, and tachypnea.

4. List indications and dose ranges for the following medications: Albuterol, Atrovent, Atropine, Nitroglycerine, Morphine, Lasix, Solu Medrol, and Epinephrine.

5. Briefly discuss the pathophysiology of emphysema, asthma, and congestive heart failure. Indicate common presenting signs and symptoms for each.

6. Briefly discuss the pathophysiology of pulmonary thromboembolism.

**Perform assessment techniques for evaluating the respiratory patient including auscultation, percussion and palpation.*
**Demonstrate use of all airway/breathing adjuncts pertaining to paramedic scope of practice.*

Section 3 8 hour

Cardiovascular System

Education Focus Points

-Review of Anatomy & Physiology
-EKG Interpretation
-ACLS
-Assessment of the Cardiac Patient
-Pathophysiology and Management
-Pharmacology of Cardiac Medications.

1). Review of Anatomy & Physiology: Heart, circulation.

A. Review the anatomy of the heart including tissue layers, chambers, valves, vessels, and the functional properties of myocardium.
B. Review the anatomy of peripheral circulation including the arterial and venous systems.
C. Discuss factors effecting cardiac output and venous return.
D. Review the physiology of circulation.
E. Identify the structure of the cardiac conduction system.
F. Detail and give examples of inotropism, chronotropism, and dromotropism.
G. Describe the role of electrolytes in cardiac contraction.
H. Trace the pathway of impulse conduction necessary for muscle contraction.
I. Differentiate sympathetic and parasympathetic influence on myocardium.
J. Include the cardiovascular physiology of aging.

2). EKG Interpretation: 3 and 12 lead, recognition of dysrhythmias.

A. Discuss the formation of EKG wave forms.
B. Demonstrate measurement of the various EKG wave forms segments and intervals.
C. Relate the cardiac surfaces or areas represented by the EKG leads and how to record a 3 and 12 lead EKG.
D. Identify how 3 and 12 lead recordings signal possible electrical function abnormalities.
E. Describe arrhythmias originating in the: sinus node, AV junction, atria, ventricles, AV node, and bundle branch system.
F. Describe reentry, parasystole, aberration, and accessory pathways.

3). ACLS: Pathophysiology and management of cardiac dysrhythmias.

A. Specify the clinical significance of major cardiac dysrhythmias
B. Identify and discuss pharmacological, mechanical, and electrical interventions in the management of dysrhythmias.
C. Identify the need for rapid intervention.

4). Assessment of the Cardiac Patient: c/c, medical history, physical exam.

A. Discuss common chief complaints and symptoms; chest pain, dyspnea, syncope, palpitations.
B. Overview key points of the medical history including previous cardiac abnormalities, medications, other illness, cardiac risk factors, and medication allergies.
C. Review the process of a thorough physical exam including;
- skin color - cap refill - JVD - edema - indicators of cardiac disease - assessment of heart sounds and breath sounds - auscultation of bruits
- assessment of pulse quality and rate.

5). Pathophysiology and Management: MI, CHF, Cardiogenic shock, Cardiac tamponade, Pericarditis, hypertensive crisis, aneurysm.

Myocardial Infarction:
A. Discuss the pathophysiology of myocardial ischemia and coronary artery disease.
B. Review the clinical features and treatment of angina pectoris.
C. List mechanism by which MI may be produced in the presence of patent coronary arteries.
D. Review the pathophysiology of MI.
E. Identify hemodynamic changes and clinical features occurring during MI.
F. Differentiate EKG changes that occur during ischemia, injury and infarction and dysrhythmias that may occur as a result of MI.
G. Integrate results of other ancillary tests to rule out MI: laboratory, echo, etc.
H. Detail acute interventions in the treatment of MI
- pharmacologic intervention - electrical intervention including AED's and pacing - angiography
F. Discuss indications/contraindications of thrombolytic intervention.

Congestive Heart Failure:
A. Identify the principle causes of CHF.
B. Differentiate the primary pathological features of right and left heart failure.
C. Describe the physiologic effects and clinical features of CHF.
D. Define and discuss the terms acute pulmonary edema, cor pulmonale, and paroxysmal nocturnal dyspnea.
E. Review the prehospital management of CHF.

Cardiogenic Shock:
A. Define cardiogenic shock and review the signs and symptoms.
B. Describe the characteristics of patients most likely to develop cardiogenic shock.
C. Discuss the management of cardiogenic shock including pharmacological interventions.

Cardiac Tamponade:

A. Describe the major pathophysiological events leading to tamponade.
B. Review cardiac anatomy and it's relationship to the development of tamponade.
C. Identify recognition of tamponade in the field including heart tones, JVD, pulses alternans, paradoxus.
D. Review the management techniques for relieving tamponade.

Pericarditis:
A. Define the causes of acute pericarditis.
B. Discuss the 12 lead EKG findings of patients with pericarditis.
C. Detail the hemodynamic effects of pericarditis
D. Review management techniques for the patient with pericarditis.

Hypertensive Crisis:
A. Identify patient populations at risk for developing HTN crisis.
B. Identify the vascular changes sustained with prolonged HTN.
C. List the various pharmacologic agents used to treat patients in HTN crisis.
D. Discuss complications of HTN crisis including, hypertensive encephalopathy, coronary insufficiency, dissection, renal complications.
E. Detail the complications of hypertensive therapy.

Aneurysm:
A. List and discuss types of aneurysms including atherosclerotic, dissecting, infectious, congenital, traumatic.
B. Review signs and symptoms of aneurysm.
C. Discuss risk factors and patient populations most prone to aneurysm.
D. Detail prehospital management of aneurysm.

6). Pharmacology of Cardiac Medications: Prehospital and common prescription.

A. Briefly review indications, contraindications, and dose of the following types of cardiovascular medications: Antidysrhythmics, sympathomimetics, antianginals, diuretics, etc.

Assessment

Division IV, Section 3

Cardiovascular System

1. Define the following terms: Diastole, systole, preload, afterload, stroke volume, cardiac output, systemic vascular resistance, automaticity, inotropy, chronotropy, and dromotropy.

2. List common signs and symptoms of patients experiencing an acute cardiovascular emergency.

3. List the common signs and symptoms associated with myocardial infarction.

4. Demonstrate the progression of EKG changes that may occur during ischemia, injury, and infarction.

5. List the common signs and symptoms associated with the following: Congestive heart failure, cardiogenic shock, cardiac tamponade, hypertensive crisis, and thoracoabdominal aneurysm.

6. List indications for the following types of cardiac medications: Lidocaine, Magnesium, Procainamide, Bretylium, Nitro, Morphine, Atropine, Isoproterenol, Adenosine, Epinephrine, Dopamine, Lasix, Aspirin, and thrombolytics,

**Psychomotor objectives will be addressed in the quarterly ACLS course including assessing and treating the patient in cardiac arrest via the algorithmic approach.*

Section 4 1 hour

Nervous System

Education Focus Points

- Anatomy and Physiology
- Neurologic Assessment
- Pathophysiology and Management
- Pharmacology of Neurological Medications

1). Anatomy & Physiology: Central nervous system, peripheral nervous system.

A. Overview central nervous system anatomy and physiology including skull, spine, brain, spinal cord, neuron, and cranial nerves.
B. Overview peripheral nervous system anatomy and physiology including the somatic and visceral nerves.
C. Review anatomy and physiology of the autonomic nervous system including the sympathetic and parasympathetic divisions.

2). Neurologic Assessment: cranial nerves, GCS.

A. Review the Glasgow coma scale and it's use for determining level of consciousness.
B. Discuss the neurological exam including determination of mentation status, motor/sensory response, coordination, and reflexes.
C. Detail use of cranial nerve tests for determination of brainstem function.

3). Pathophysiology and Management: Coma/AMS, syncope, seizures (status), CVA, TIA, headache, neoplasm, weakness, vertigo, degenerative neuro diseases.

Coma/AMS:
A. Define coma and altered mental status and discuss signs and symptoms of each.
B. Detail the metabolic, structural, and psychiatric causes of AMS and coma.
C. Discuss other pathophysiology of coma and AMS.
D. Review prehospital management of coma and AMS.

Syncope:
A. Pathophysiology and causes of syncope including cardiac, seizure disorders, PVD, cerebrovascular, etc..
B. Discuss management of the syncopal patient.

Seizures:

A. Differentiate between syncope and seizures.
B. Review the clinical manifestation of the different types of seizures.
C. Describe the phases of a generalized seizure.
D. Define status epilepticus.
E. Discuss management and transport strategies for the acute seizure patient and the chronic seizure patient.
F. Discuss the pharmacological interventions used in the management of seizures.

CVA:

A. Discuss causes of CVA and patient populations at high risk.
B. Review differential diagnosis of presenting complaints.
C. Review the clinical presentation of CVA including ischemia and infarct, thrombotic and embolic, and intracranial hemorrhage.
D. Detail management of stroke both prehospital and inhospital including use of thrombolytics.

TIA:

A. Define TIA and differentiate from CVA.
B. Recognize signs and symptoms associated with TIA.
C. Differentiate various treatment and pharmacologic interventions in the management of TIA.

Headache:

A. Recognize signs, symptoms and clinical evaluation related to headache.
B. Discuss pathophysiology of headache: vascular, metabolic, tension, traction, inflammatory, cranial neuralgia's, and miscellaneous.
C. Discuss clinical significance of headache and review prehospital treatment options.

Neoplasm:

A. Define neoplasm's and recognize the associated signs and symptoms.
B. Discuss specialized treatments for neoplasm's and prognosis for same.

Vertigo/Weakness:

A. Define vertigo and discuss the etiologies and clinical manifestations.
B. Review the diagnosis of vertigo including physical exam, history, etc.
C. Detail prehospital management of vertigo.

Degenerative Neurological Diseases:

A. Briefly review the following neurological diseases: muscular dystrophy, multiple sclerosis, dystonia, Parkinson's disease, trigeminal neuralgia, Bell's palsy, AMS, peripheral neuropathy, myoclonia, spina bifida, cystic fibrosis, arthritis, lupus, polio, and Alzheimer's.
B. Recognize signs and symptoms related to these various neurological diseases.
C. Review the various treatment and pharmacologic interventions for patients with the above conditions

4). Pharmacology of Neurologic Medications: Prehospital and common prescription.

A. Overview pharmacology, indications, contraindications, and dosing of the following

medications commonly used for neurologic conditions: anticonvulsants, antiemetics, muscle relaxants, corticosteroids, drugs to manage altered mental status, migraine, Parkinsonian agents, etc.

Assessment

Division IV, Section 4

Nervous System

1. List the two components of the Autonomic Nervous System and the functions of each.

2. Discuss the function of somatic and visceral divisions of the peripheral nervous system.

3. List common signs and symptoms as well as treatment strategies for the following: CVA, TIA, altered mental status, syncope, vertigo, and seizures.

4. List the indications for the following medications: Narcan, D50/W, Valium, sedatives, and antiemetics.

**Obtain an appropriate history and develop a treatment plan for the patient with a neurologic emergency.*

Section 5 1 hour

Endocrine System

Education Focus Points

- Anatomy and Physiology
- Pathophysiology, Assessment, and Management
- Pharmacology of Endocrine Medications

1). Anatomy & Physiology: Pituitary, Thyroid, Parathyroid, Pancreas, Adrenals, Gonads.

A. Briefly review the anatomy and physiology of the endocrine system and it's inherent organs.

2). Pathophysiology, Assessment, and Management: Diabetes, Hypoglycemia, Ketoacidosis, Hyperglycemia, Thryotoxicosis, Myxedema, Cushings syndrome, Addison's disease.

Diabetes Mellitus:

A. Describe the pathophysiology of adult and juvenile onset diabetes.
B. Discuss the relationship between serum glucose and insulin in diabetes including the effects of abnormal levels of each .
C. Review the prehospital management of diabetic emergencies.

Hypoglycemia:

A. Detail glucose homeostasis including the relationships between insulin, catecholamines, glucagon, glucocorticoids, and growth hormone.
B. Describe the pathophysiology of hypoglycemia.
C. Review the clinical presentation and management of the hypoglycemic patient.

Ketoacidosis:

A. Review the pathophysiology of diabetic ketoacidosis.
B. Describe the clinical presentation, treatment, and management.
C. Indicate the complications and mortality of DKA.
D. Discuss the pathogenesis, presentation, and treatment of alcoholic ketoacidosis.

Hyperglycemia:

A. Discuss the pathophysiology of nonketotic hyperosmolar coma
B. Review the clinical presentation and treatment of the hyperglycemic patient.
C. Indicate the complications and mortality.

Thyrotoxicosis:

A. Discuss the pathophysiology of thyrotoxicosis including precipitating factors.
B. Review the clinical presentation and treatment of thyrotoxicosis.

Myxedema:

A. Review the causes and pathophysiology of hypothyroidism.
B. Describe the precipitating factors for myxedema coma.
C. Discuss the clinical presentation and treatment of myxedema coma.

Cushings Syndrome:

A. Discuss the pathophysiology of Cushings Syndrome
B. Discuss the clinical presentation and treatment of Cushings Syndrome.

Addison's Disease:
A. Describe the pathophysiology of primary adrenal insufficiency.
B. Discuss the clinical presentation and management of the patient with Addison's Disease.

3**). Pharmacology of Endocrine Medications:** Prehospital and common prescription.

A. Review the pharmacology, indications, contraindications, and dosing of the following: Corticosteroids, diabetes agents, sex steroids, thyroid agents, etc.

Assessment

Division IV, Section 5

Endocrine System

1. Briefly review the major functions of the following glands: Pituitary, Thyroid, Parathyroid, Pancreas, Adrenals and Gonads.

2. Briefly discuss the function of insulin and it's relationship to glucose metabolism.

3. List the signs and symptoms associated with hypoglycemia. Indicate the treatment regimen for the hypoglycemic patient.

4. List the common signs and symptoms and treatment for the following: Thyrotoxicosis, Myxedema, Cushings Syndrome, Addison's disease, and Ketoacidosis.

**Obtain an appropriate history and develop a treatment plan for the patient with an endocrine emergency.*

Section 6 1 hour

Anaphylaxis

Education Focus Points

- Pathophysiology of Allergic Reactions
- Clinical Presentation
- Assessment/Management

1). Pathophysiology of Allergic Reactions: Immune response, antigens and antibodies, vaccines, immunization.

A. Review the immune response including introduction of antigens and antibodies, and vaccines.
B. Discuss immunity both natural and acquired.

2). Clinical Presentation: Skin, respiratory, cardiovascular, GI, nervous.

A. Discuss the clinical manifestation of anaphylaxis in the body systems.

3). Assessment/Management: Primary/secondary, ABC's, pharmacologic intervention.

A. Review the assessment of the patient with anaphylaxis including the potential for rapid deterioration.
B. Detail management for the patient with anaphylaxis including pharmacologic intervention.

Assessment

Division IV, Section 6

Anaphylaxis

1. Define the term anaphylaxis.

2. Discuss the clinical progression of anaphylaxis in the following systems; skin, respiratory, cardiovascular, GI, and nervous.

3. Detail the management of the anaphylactic patient including pharmacologic intervention.

**Obtain an appropriate history and develop a treatment plan for the patient with an anaphylactic emergency.*

Section 7 1 hour

Gastroenterology/Genitourinary

Education Focus Points

- Anatomy and Physiology
- Abdominal Pathophysiology
- Assessment and Management

1). Anatomy & Physiology: Abdomen (GI and GU).

A. Review the general anatomy and physiology of the organs related to digestion/elimination and reproduction.

2). Abdominal Pathophysiology: Upper GI bleeding, lower GI bleeding, renal failure, renal calculi, UTI, acute gastroenteritis, colitis, diverticulitis, appendicitis, peptic ulcer disease, bowel obstruction, Chron's disease, pancreatitis, esophageal varices, hemorrhoids, cholecystitis, acute hepatitis, reproductive system disorders.

Upper and Lower GI Hemorrhage:

A. Discuss pathophysiology, clinical presentation, and management of hemorrhage originating in both the upper and lower GI tract.

Renal Failure:

A. Review the etiology and differential diagnosis of acute renal failure.
B. Detail the clinical presentation of the patient in acute renal failure.
C. Overview complications of renal failure and prehospital management of same.
D. Compare and contrast acute renal failure and chronic renal failure.
E. Review special considerations for the dialysis patient including prehospital management.

Renal Calculi:

A. Define pathogenesis and clinical features of renal calculi.
B. Discuss prehospital emergencies involving and management of renal calculi.

Acute Gastroenteritis, Colitis, Diverticulitis, Appendicitis, Peptic Ulcer Disease, Pancreatitis, Hemorrhoids, Cholecystitis, and Bowel Obstruction:

A. Define and discuss etiology, pathophysiology, and diagnosis of each.
B. Review prehospital management.

Crohn's Disease:

A. Define etiology and pathogenesis of Crohn's disease.
B. Discuss complications of the disease, clinical course and prehospital management.

Esophageal Varices:

A. Discuss the etiology and pathogenesis of esophageal varices.
B. Review clinical presentation and management of varices.

Acute Hepatitis:

A. Discuss etiology and incidence of jaundice and acute hepatitis (including A, B, non A/B, and D).
B. Briefly review prevention and prophylaxis of hepatitis.
C. Review incidence of toxic hepatitis.
D. Discuss pathophysiology of alcoholic liver disease.
E. Review management strategies for hepatitis.

Reproductive system disorders: urinary tract infections (incl. pyelonephritis), female reproductive disorders (PID, ovarian cyst, Mittelschmerz, ectopic pregnancy), and male reproductive disorders (torsion, epididymitis, prostatitis)

A. Define and discuss etiology, pathophysiology, and diagnosis of each.
B. Review prehospital management.

3). Assessment and Management: Acute abdomen

A. Review rapid assessment of the acute abdomen including history and physical exam.
B. Discuss prehospital management of patients with acute abdomen.

Assessment

Division IV, Section 7

Gastroenterology/Genitourinary

1. Differentiate the clinical presentation of upper vs. lower GI hemorrhage.

2. List causes of acute abdominal pain that can arise in the genitourinary system of both the male and female.

3. Define the following terms: Epigastrium, peritoneum, peristalsis, varices, diverticulitis, anorexia, hematemesis, cathartic, hematuria, hematochezia, ascites, and Mittelschmerz.

4. Discuss the clinical presentation and prehospital management of the following: Renal failure, renal calculi, esophageal varices, ectopic pregnancy, and testicular torsion.

**Obtain an appropriate history and develop a treatment plan for the patient with a gastroenterology emergency.*

Section 8 2 hour

Communicable Diseases

Education Focus Points

- Pathogenesis
- Immunity
- Transmission
- Pathophysiology and Prevention

1). Pathogenesis: Bacteria, virus, fungi, parasites.

A. Discuss the stages of an infectious disease including the latent period, communicable period, incubation period, window phase, and disease period.
B. Review the pathogenesis of infectious disease.
C. List common infectious diseases and their routes of transmission.

2). Immunity: Immune response, lymphatic system.

A. Overview the immune response including the role of the lymphatic system.

3). Transmission: Routes, risk, post-exposure

A. Discuss the pathophysiology of infectious and communicable diseases.
B. Detail universal precautions and body substance isolation.
C. Describe the routes and risk for exposure and post-exposure considerations.

4). Pathophysiology & Prevention:

a). Meningitis
b). Tuberculosis
c). Hepatitis
d). Blood Borne Pathogens

Assessment

Division IV, Section 8

Communicable Diseases

1. List the stages of an infectious disease.

2. Define the following terms: Bacteria, antibiotics, virus, fungi, and antigen.

3. Differentiate viral and bacterial illnesses.

4. List presentation and appropriate prehospital safety precautions for the following: Tuberculosis, hepatitis, AIDS/HIV, and meningitis.

**Obtain an appropriate history and develop a treatment plan for the patient with a communicable disease.*

Section 9 1 hour

Toxicology, Alcoholism and Drug Abuse

Education Focus Points

- General Toxicological Overview
- Specific Pathophysiology, Assessment, and Management of Poisoning and Overdose

1). General Toxicology Overview: Routes of exposure, resources for management, general assessment and management.

A. Overview toxic exposure points of entry into the body; ingestion, inhalation, injection, absorption, etc.
B. Review resources for dealing with exposure, i.e. local poison information center.
C. Review evaluation of the poisoned patient including history and physical exam.
D. Detail the importance of determining scene safety.

2). Specific Pathophysiology, Assessment and Management: Ingested poisons, inhalation, injected poisons, surface absorption, and Overdose.

Ingestion:
A. Pathophysiology, assessment and management; caustics, hydrocarbons, methyl alcohol, ethylene, cyanide, food poisoning, poisonous plants, etc.

Inhalation:
A. Pathophysiology, assessment and management; carbon monoxide, chlorine, ammonia, chlorinated hydrocarbons, methylene chloride, freon, etc.

Injection:
A. Pathophysiology, assessment and management; hymenoptera, spider, scorpion, snakes, marine animals, etc.

Absorption:
A. Pathophysiology, assessment and management; pesticides, cyanide, hydrofluoric acid, nitroglycerin, clonidine, etc.

Overdose:
A. Pathophysiology, assessment and management; Narcotics, sedatives, ASA, APAP, TCA, calcium channel blockers, beta blockers, cardiac agents, theophylline, diazepam, Isoniazid, antipsychotics.

3). Specific Pathophysiology, Assessment and Management: Drug/alcohol overdose and abuse.

A. List and review physiologic effects of the most commonly abused drugs; ETOH, hallucinogens, PCP, heroin, cocaine, crack, cannabis, amphetamine, caffeine.
B. Discuss typical clinical presentation of the abusing patient.
C. Review potential complications of abuse and prehospital management of these

complications.

Assessment

Division IV, Section 9

Toxicology, Alcoholism, and Drug Abuse

1. List the various entry routes for toxic substances into the body.

2. List five common drugs of abuse in the following classes and prehospital management for each: Narcotics, stimulants, sedatives, and antipsychotics.

3. List the major physiological signs of alcohol abuse.

**Obtain an appropriate history and develop a treatment plan for the poisoned patient.*
**Obtain an appropriate history and develop a treatment plan for the patient with an acute overdose.*
**Obtain an appropriate history and develop a treatment plan for the poisoned patient.*

Section 10 2 hour

Environmental Emergencies

Education Focus Points

- Thermoregulation
- Pathophysiology, Assessment and Management of Environmental Emergencies

1). Thermoregulation: Generation and loss of heat, heat control.

A. List the mechanisms of thermal generation within the body and the basic mechanism associated with each.
B. Identify risk factors predisposing patients to environmental emergencies.
C. Describe the compensatory mechanism for excess thermal gain and loss.

2). Pathophysiology, Assessment, and Management: Thermal disorders, near drowning.

A. Describe the pathophysiology, assessment and management of the following: Heat cramps, heat exhaustion, heat stroke, hyperpyrexia, hypothermia, frost bite, and near drowning.

3). Pathophysiology, Assessment, and Management: Nuclear radiation, diving emergencies, pressure disorders.

A. Review basic nuclear physics and the effects of radiation on the body.
B. Describe prehospital management of radiation emergencies.
C. Discuss the epidemiology and prehospital management of near drowning.
D. Describe the incidence, pathophysiology, and management of dysbarism.
E. Overview lightning injuries including mechanism of injury, differential diagnosis, and management of injuries.
F. Discuss pathophysiology, assessment and management of injuries associated with high altitude.

Assessment

Division IV, Section 10

Environmental Emergencies

1. List the four methods by which the body loses heat to the environment and provide examples of each.

2. Detail the prehospital management of the near-drowning patient.

3. List the common signs and symptoms as well as prehospital management for the following: Heat cramps, heat exhaustion, and heat stroke.

4. Discuss the clinical presentation and prehospital management for frost bite.

5. Overview the prehospital management of radiation emergencies.

6. Detail the pathophysiology of decompression sickness and review the prehospital management.

**Obtain an appropriate history and develop a treatment plan for the patient with an acute environmental emergency.*

Section 11 3 hour

Special Considerations for Geriatric and Pediatric Patients

Education Focus Points

- Anatomy and Physiology
- General Assessment
- Pathophysiology and Management
- Pharmacologic Considerations
- PALS

1). Anatomy & Physiology: Developmental stages, A & P of aging.

A. Briefly overview systemic physiologic changes associated with age.
B. Review the developmental stages and their relationship to assessing the pediatric patient including neonates, 1-5 months, 6-12 months, 1-3 years, 3-5 years, 6-12 years, 12-15 years.
C. Differentiate infant/child and adult anatomic/physiologic features.

2). General Assessment: Special considerations for Geriatric/Pediatric patients.

A. Overview complicating factors of assessing the elderly patient
B. Review the differences in presentation of elderly patients for the following: MI, CHF, PE, diabetes, environment emergencies, COPD, pneumonia, aneurysm, dysrhythmias, etc.
C. Differentiate the assessment of the elderly patient vs. that of the young patient.
D. Discuss common complaints of elderly patients.
E. Demonstrate appropriate technique for measuring pediatric vital signs.
F. Discuss/demonstrate appropriate treatment approaches for pediatric patients including those with "special needs".

3). Pathophysiology and Management: Trauma, abuse, medical emergencies (cardiovascular, respiratory, neurologic, GI, psychiatric).

A. Compare the causes, effects, and management of traumatic injuries in elderly patients.
B. Discuss elder abuse including manifestations and management.
C. Review Alzheimer's Disease to include definition, expected course of the disease, complications, and management techniques.
D. Review management of medical emergencies in the elderly patient
E. Compare assessment and management of acute dementia with that of chronic dementia.
F. Discuss common emotional reactions to aging and the elderly including societal reactions, health care provider reactions, etc.
G. Describe techniques for successful interaction with families of acutely ill or injured infants and children.
H. Define respiratory distress and discuss signs and symptoms of respiratory distress and failure in infants and children.
I. List common etiologies of upper and lower airway diseases in infants and children.

J. Review appropriate airway control adjuncts and techniques for pediatric patients.
K. List common etiologies, including treatment, of shock in infants and children.
L. Detail the etiology and prehospital management of pediatric trauma emergencies including injuries to the head, face, neck, chest, abdomen, and extremities.
M. Detail the etiology and prehospital management of pediatric burn emergencies.
N. Detail the characteristics and management of the abused/neglected child.
O. Identify common child abuse injuries and the management of the victim/family in an abuse/neglect situation.
P. Identify common characteristics, and physical findings of the infant who dies of SIDS.

4). Pharmacologic Considerations: Changes in the elderly and pediatric considerations.

A. Differentiate differences in the elderly of drug distribution, metabolism, and excretion.
B. Discuss medication issues in the elderly patient including polypharmacy, increased drug sensitivity, etc.
C. Compare use and effects of common R_x meds in the elderly patient including: antihypertensives, antidysrhythmics, diuretics, digitalis, psychotropics, antidepressants, etc.
D. Differentiate and discuss pain management in infants and children.
E. Identify the correct medication dosages and routes for administration of common pediatric medications.

5). PALS: General overview. ABC's: airway/ventilatory management, vascular access, medications, electrical therapy.

A. Discuss incidence, etiology, and treatment of cardiac dysrhythmias and cardiac arrest in infants and children.
B. Demonstrate/discuss considerations for vascular access in the pediatric patient.
C. Discuss incidence, pathophysiology, and management for epiglottitis bronchiolitis and asthma in the pediatric patient.
D. Discuss the etiologies and management of patients with altered mental status including sepsis, hypoglycemia, toxic exposure, etc.
E. Discuss the etiologies and management of patients with seizures.
F. Discuss the etiologies and management of patients with other infectious diseases including meningitis, fever, AIDS, etc.

Assessment

Division IV, Section 11

Special Considerations for Geriatric and Pediatric Patients

1. List five complicating factors of assessing the elderly patient.

2. List common differences in the elderly regarding drug distribution, metabolism, and excretion.

3. Identify common signs and symptoms indicating elder abuse.

4. List the major anatomical differences in infants that may influence assessment and treatment practices.

5. List common etiologies of respiratory distress in infants and children.

6. List common child abuse injuries and the management of the victim in an abuse situation.

**Psychomotor objectives for evaluating and treating pediatric emergencies will be addressed in the Pediatric Advanced Life Support course.*
**Demonstrate the ability to assess and treat emergencies in the geriatric population.*

Division V - OB/GYN/NEONATAL

Gynecological Problems
Obstetrics and Obstetrical Complications
Care of the Neonate

Section 1 1 hour

Gynecologic Problems

Education Focus Points

- Anatomy and Physiology
- Assessment
- Pathophysiology and Management of Gynecological Emergencies

1). Anatomy & Physiology: Female reproductive organs.

A. Review the anatomy and physiology of the female reproductive organs.

2). Assessment: Physical exam

A. Review physical exam and history taking techniques.
B. Overview exam and history taking techniques for the victim of sexual assault (male, female, and child).
C. Present the spectrum and behaviors suggestive of sexual abuse.

3). Pathophysiology and Management of Gynecological Emergencies: Medical emergencies, traumatic emergencies.

A. Discuss etiology, pathophysiology, and management of gynecological problems including: Ectopic pregnancy, SAB, hemorrhagic corpus luteum, infected abortion, abnormal genital bleeding, and PID.
B. Discuss the incidence and occurrence of endometriosis.
C. Review the epidemiology and management considerations in sexual assault
D. Review incidence and management of toxic shock syndrome.
E. Discuss causes and management of gynecological trauma.

Assessment
Division V, Section 1

Gynecologic Problems

1. 1. Define the following terms: Ovaries, fallopian tubes, uterus, endometrium, cervix, Mittleschmertz and perineum.

2. Discuss special considerations when examining the victim of sexual assault.

3. Discuss side-effects associated with taking oral contraceptives.

4. List causes of life-threatening gynecological emergencies that may present with abdominal pain.

**Demonstrate the ability to perform an exam and use appropriate assessment techniques in the patient with a gynecological complaint including excessive vaginal bleeding, abdominal pain, hypertensive crisis, and seizures.*

Section 2 2 hour

Obstetrics and Obstetrical Complications

Education Focus Points

- Prenatal Period
- Puerperium

1). **Prenatal Period:** A&P, terminology, assessment, complications of pregnancy.

A. Overview anatomy and physiology of the obstetric patient including blood volume.
B. Briefly include common obstetrical terminology.
C. Review assessing the obstetrical patient including history and physical exam.
D. Review the effects/complications of drug and radiation exposure during pregnancy.
E. Discuss the effects of pre-existing or aggravated medical conditions: IDDM, HTN, heart disease, etc.
F. Detail other medical conditions of pregnancy: Pre-term labor, PROM, preeclampsia, thromboembolism, liver disease, cholecystitis, appendicitis, substance abuse.
G. Detail the considerations with vaginal bleeding during pregnancy: abortion (threatened, complete, incomplete,), molar pregnancy, placenta previa, abruptio, etc.
H. Review issues of traumatic injuries during pregnancy.
I. Relate the physiological changes of pregnancy with traumatic injury.
J. Overview prehospital management of the pregnant trauma patient.

2). **Puerperium:** Delivery, complications of, field delivery.

A. Review and demonstrate procedures of prehospital delivery including normal delivery, and abnormal presentation.
B. Detail complications of delivery including postpartum hemorrhage, uterine rupture, inversion, and pulmonary embolism.

Assessment
Division V, Section 2

Obstetric and Obstetrical Complications

1. List the functions of the placenta.

2. Define the following terms: Ductus Venosis, Ductus Arteriosis, and Foramen Ovale.

3. Discuss prehospital management for the following conditions: Ectopic pregnancy, abruptio placentae, placenta previa, and pre-term labor (Braxton-Hicks).

4. Define the first, second, and third stages of labor.

**Perform the necessary steps to ensure safe delivery including proper assessment, assistance with normal and abnormal presentations, and proper care for delivery complications.*

Section 3 1 hour

Care of the Neonate

Education Focus Points

- General Overview
- Management of the Neonate
- Neonatal Resuscitation

1). General Overview: Anatomic and physiologic changes at birth.

A. Review the circulatory and respiratory anatomical and physiological changes that occur in the newborn.

2). Management of the Neonate: ABC's, body temp., assessment, APGAR.

A. Review management techniques for the neonate; airway control, breathing assessment and management, and circulation assessment and management.
B. Discuss the importance of minimizing heat loss in the neonate.
C. Detail neonate assessment techniques including use of the APGAR score.
D. Describe the premature neonate and review special considerations for management.

3). Neonatal Resuscitation:

A. Define neonatal distress.
B. Review appropriate equipment for managing the distressed neonate.
C. Detail management considerations in the distressed newborn.
D. Review the inverted pyramid detailing the relative frequency of steps in newborn resuscitation.
   - Step 1; Drying, warming, positioning, suction, and stimulation.
   - Step 2; Supplemental O_2.
   - Step 3; Ventilation.
   - Step 4; Chest compressions.
   - Step 5; Medications and fluids
E. Review neonatal resuscitation medications.

Assessment
Division V, Section 3

Care of the Neonate

1. Discuss the necessity for providing ventilatory assistance to the newborn based on the APGAR score.

2. Determine appropriateness of chest compressions in the newborn based on the APGAR score and the correct compressions to ventilations ratio.

Division VI - BEHAVIORAL EMERGENCIES

Overview of Behavioral Emergencies/Psychotic Disorders
The Violent Patient/Response to Crisis Situation

Section 1 & 2 2 hour

Overview of Behavioral Emergencies/Psychotic Disorders

Education Focus Points

- Behavioral Emergencies
- Assessment/Management

1). Behavioral Emergencies: Causes, specific disorders, age related emergencies.

A. Review the causes of behavioral emergencies including intrapsychic, environmental, and organic causes.
B. Identify signs and symptoms of specific psychiatric disorders; Depression, suicide (attempted), anxiety, mania, schizophrenia, substance abuse etc.
C. Discuss age-specific behavioral disorders.
D. Review common terminology relating to behavioral emergencies; rage, hostility, affect, labile, etc.

2). Assessment/Management: Scene, interviewing techniques, emergency treatment

A. Review the appropriate mental status exam.
B. Detail assessment of acute behavioral emergencies incl.: Rapid ABC's, orientation, appropriateness of responses, mood, distraction, abnormal anxiety, depression, elation, unusual fear, hallucinations, disordered thoughts, delusions.
C. Describe techniques that facilitate gathering of information from disturbed patients.
D. Discuss verbal techniques for diffusing a potentially violent situation.
E. Review emergency treatment of the disturbed patient including differential dx of other disease processes.

Assessment
Division VI, Section 1

Overview of Behavioral Emergencies/Psychotic Disorders

1. List some organic causes of behavioral disorders.

2. Define or provide an example of behavior type for the following disorders: Schizophrenia, mood disorder, anxiety disorder, and disorder due to substance abuse.

3. Discuss five important techniques for interviewing the emotionally disturbed patient.

4. What is the single most important factor when dealing with an emotionally disturbed patient?

**Demonstrate the proper technique for interviewing and managing the emotionally disturbed patient.*

Section 3 & 4 2 hour

The Violent Patient/Response to Crisis Situation

Education Focus Points

- General Overview
- Scene Control
- Domestic Violence

1). General Overview: Recognition, diffusing.

A. Discuss predictors of violence; PMH, posture, activity, impulse control, substance abuse, organic disorder, etc.
B. Diagram the evaluation of risk in the suicidal/violent patient.
C. Detail diffusing a potentially violent situation and indicators of the violent patient out of control.
D. Present and discuss the essential components and strategies of crisis intervention.
E. Review medico-legal considerations regarding consent, competency, refusals, restraint, etc.

2). Scene Control: Restraint, transport, injury avoidance.

A. Provide methods of restraint and discuss appropriateness of each.
B. Demonstrate the above restraint techniques.
C. Discuss methods to avoid injury.
D. Review techniques to provide safe transport of the violent patient.
E. Detail pharmacological restraint alternatives including dose, indications, contraindications, etc.

3). Domestic Violence.

A. Discuss potential indicators for domestic violence/abuse.
B. Present unique characteristics of the domestic violence scene.
C. Review the importance of prioritizing patient care over "judgment" in the domestic violence situation.

Assessment
Division VI, Section 2

The Violent Patient/Response to Crisis Situation

1. List some of the major risk factors for suicide.

2. When is it appropriate to transport a patient against their will?

3. List pharmacological restraint techniques available to you including indications, dose, and contraindications.

4. Define the following terms: Maladaptive behavior, competence, and consent.

5. List some potential indicators for domestic abuse.

**Demonstrate the proper technique for interviewing and managing the violent patient.*
**Demonstrate patient restraint techniques including positioning the patient, preparing for transport and protecting self and others from injury.*